

Categories of Instructional Strategies That Affect Student Achievement

Category	Average Effect Size	Percentile Gain
Identifying similarities and differences	1.61	45
Summarizing and note taking	1.00	34
Reinforcing effort and providing recognition	.80	29
Homework and practice	.77	28
Nonlinguistic representation	.75	27
Cooperative learning	.73	27
Setting objectives and providing feedback	.61	23
Generating and testing hypotheses	.61	23
Questions, cues, and advance organizers	.59	22

Ways to Utilize Similarities and Differences

- Comparing
- Classifying
- Creating metaphors
- Creating Analogies

Comparing: Identifying similarities and differences between or among things or ideas

Comparison Matrix				
Characteristics	#1	#2	#3	
1.				Similarities Differences
2.				Similarities Differences
3.				Similarities Differences
4.				Similarities Differences

Similarities & Differences

Compare and Contrast Diagram

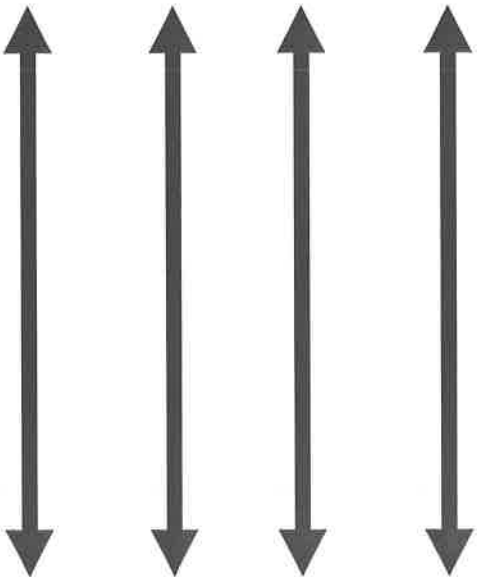
Concept:

Concept:

How Alike?

How Different?

With Regard To:



Classifying: Grouping things together that are alike into categories on the basis of their characteristics

Similarities & Differences

Example of Classification

The following characters are from books we have read. Organize these characters into two or more categories and explain the rules that govern each category. Be able to explain the placement of each character.



- Scout in *To Kill a Mockingbird*
- Atticus Finch in *To Kill a Mockingbird*
- Boo Radley in *To Kill a Mockingbird*
- Jake Barnes in *The Sun Also Rises*
- Brett Ashley in *The Sun Also Rises*
- Pedro Romero in *The Sun Also Rises*
- Celie in *The Color Purple*
- Mr. in *The Color Purple*
- Shug Avery in *The Color Purple*



Influential	Helpless	Wise

Similarities & Differences

Creating Metaphors:

The process of identifying a general or basic pattern in a specific topic that appears to be quite different but that has the same general pattern

Two literal items connected by an abstract relationship:

“Love is a rose.”

Literal: Rose...the blossom is sweet to smell but if you touch the thorns they can stick you

Abstract: Something wonderful and you want to go near it but if you get too close you might get hurt.

Literal: Love...makes you happy but the person you love can end up hurting you

Similarities & Differences

Example of Metaphor

Cell	General, Abstract	Enterprise
Nucleus	The part the runs the system	The bridge
Selectively permeable membrane	Part that keeps out bad things and lets in the good	Transporter Room

Similarities & Differences

Creating Analogies:

Identifying relationships between pairs of concepts; (identifying relationships between the relationships)

Usually done in A is to B as C is to D format

- Teacher directed: give an example and have students explain the relationship
 - Thermometer is to temperature as odometer is to distance
- Student directed: teacher provides the 1st pair and have students provide the 2nd pair
 - Robert Frost is to poetry as _____ is to _____

Similarities & Differences

Graphic Organizer for Analogies



Is to



relationship



as



Is to



Similarities & Differences

Zig Zags

Similarities

Directions – Draw connecting lines to match words to the way they are alike. The first one is done for you.

Earth	these can be climbed	basketball
Saturday	both are days of the week	pencil
chalk	these are both instruments	stairs
ladder	these are both round	backpack
Trumpet	used to write with	books
jacket	these have pockets	Monday
magazines	these have pages	Piano

Four Box Synectics

Purpose: To engage students in reinforcing their understanding of words or concepts through the use of a creative comparison

Description: Synectics promotes fluid and creative thinking by comparing two things that would not ordinarily be compared. Synectics, a term coined by industrial psychologists Williams Gordan and George Prince, was originally used as a problem-solving strategy. The term is formed from two Greek roots: *syn*, *bringing together*, and *ectics*, *diverse elements*.

Procedure:

1. Prepare a chart or overhead transparency of the Four Box Synectics organizer.
2. Put students into small groups of 3-4 each.
3. Next, ask for four items in an assigned category (e.g., commonly found household objects, animals, things found in a forest, recreational activities, and foods). Place one item in each of the four boxes.
4. Reveal the sentence "A _____ is like a _____ because..." and allow groups three minutes to brainstorm sentences using each of the four items at least once. Students should try to complete as many sentences as they can in the time allotted.
5. After three minutes, STOP. The final step is for each group to choose the two sentences they like the best to share with the rest of the class.

Lipton, L., & Wellman, B. (1998). Patterns and practices in the learning-focused classroom. Guilford, Vermont: Pathways Publishing

Four Box Synectic

A _____ is like a _____ because...

Sample Four Box Synectics for Database

(using common household items)

<p>Closet</p> <p>A database is like a closet because it is used for storing information.</p>	<p>Drawer</p> <p>A database is like a drawer because it helps to keep information organized.</p>
<p>Trashcan</p> <p>A database is like a trashcan because you can delete any information you no longer want.</p>	<p>Doorway</p> <p>A database is like a doorway because it is a portal to your information.</p>

A _____ is like a _____ because...